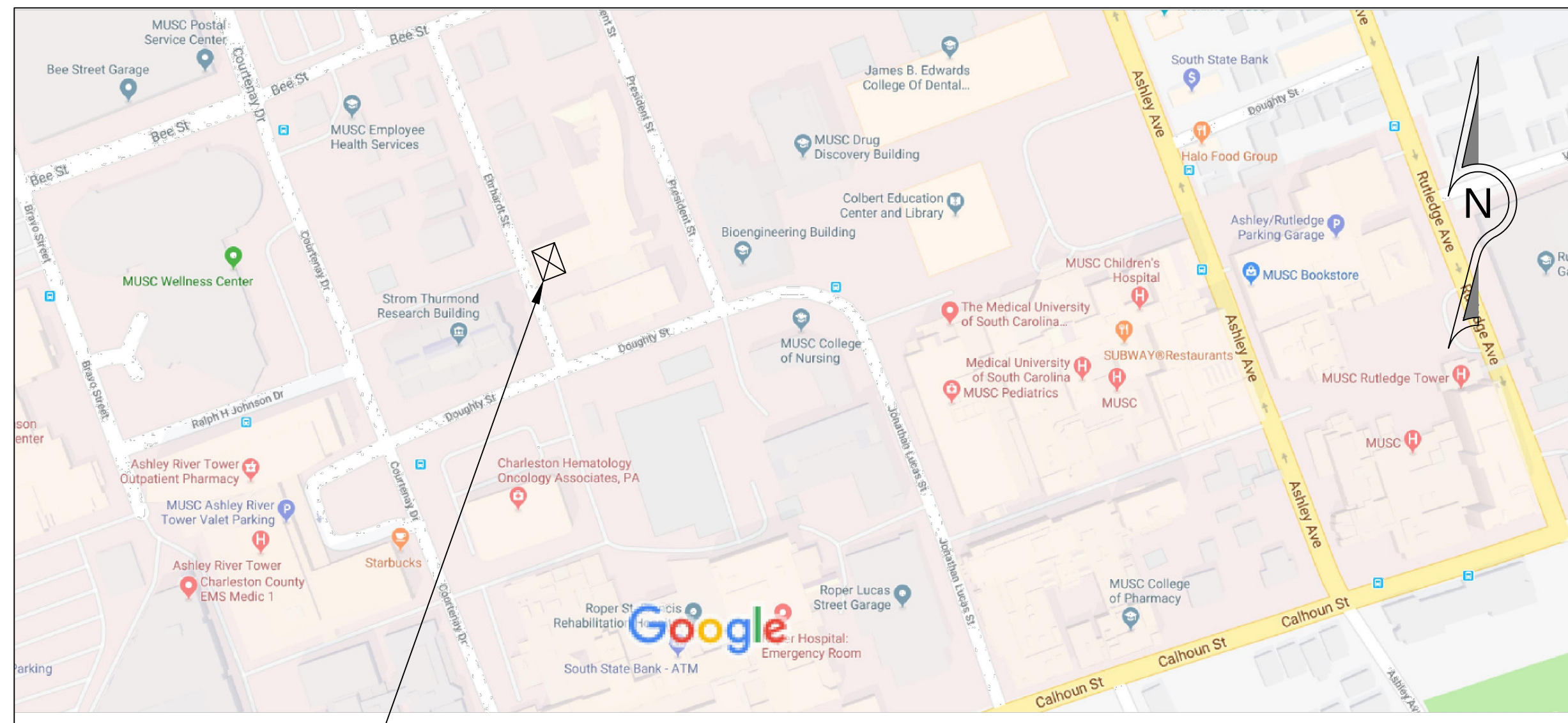


MEDICAL UNIVERSITY OF SOUTH CAROLINA INSTITUTE OF PSYCHIATRY CHARLESTON, SC

VICINITY MAP



INSTITUTE OF PSYCHIATRY
67 PRESIDENT ST.
CHARLESTON SC, 29425

INDEX OF DRAWINGS

GENERAL

G0-00 COVER SHEET
G0-01 CODE SHEET

STRUCTURAL

S0-01 DESIGN CRITERIA & GENERAL NOTES
S1-01 NEW MOUNTING PLATFORM PLAN
S5-01 ENLARGED PLAN, SECTION & DETAILS
S5-02 GENERATOR PLATFORM FABRICATION ASSEMBLY
SD1-01 EXISTING PARTIAL ROOF FRAMING & DEMOLITION PLAN

ELECTRICAL

E-1 NEW EMERGENCY SINGLE-LINE DIAGRAM
E-2 PARTIAL ROOF PLAN
ED-1 DEMOLITION SINGLE-LINE DIAGRAM

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SOUTH CAROLINA

LIVE OAK CONSULTANTS, LLC

NO. 3886

DATE OF AUTHORIZATION

SOUTH CAROLINA

LIVE OAK CONSULTANTS, LLC

NO. 18348

DATE OF AUTHORIZATION

MUSC

MEDICAL UNIVERSITY
of SOUTH CAROLINA

REVISION INFORMATION			
REV.	DATE	REV. BY	ISSUED FOR BIDS
A	02/23/18	JMG	

DRAWING TITLE:

CHARLESTON, SC
MUSC IOP
GENERATOR REPLACEMENT

COVER SHEET

PROJECT MANAGER: RNB
DESIGNED BY: JMG
DRAWN BY: JMG
APPROVED BY: LAM
SCALE: N.T.S.
PROJECT NUMBER: 20170078
CAD FILE: G0-00

DRAWING NUMBER:

G0-00

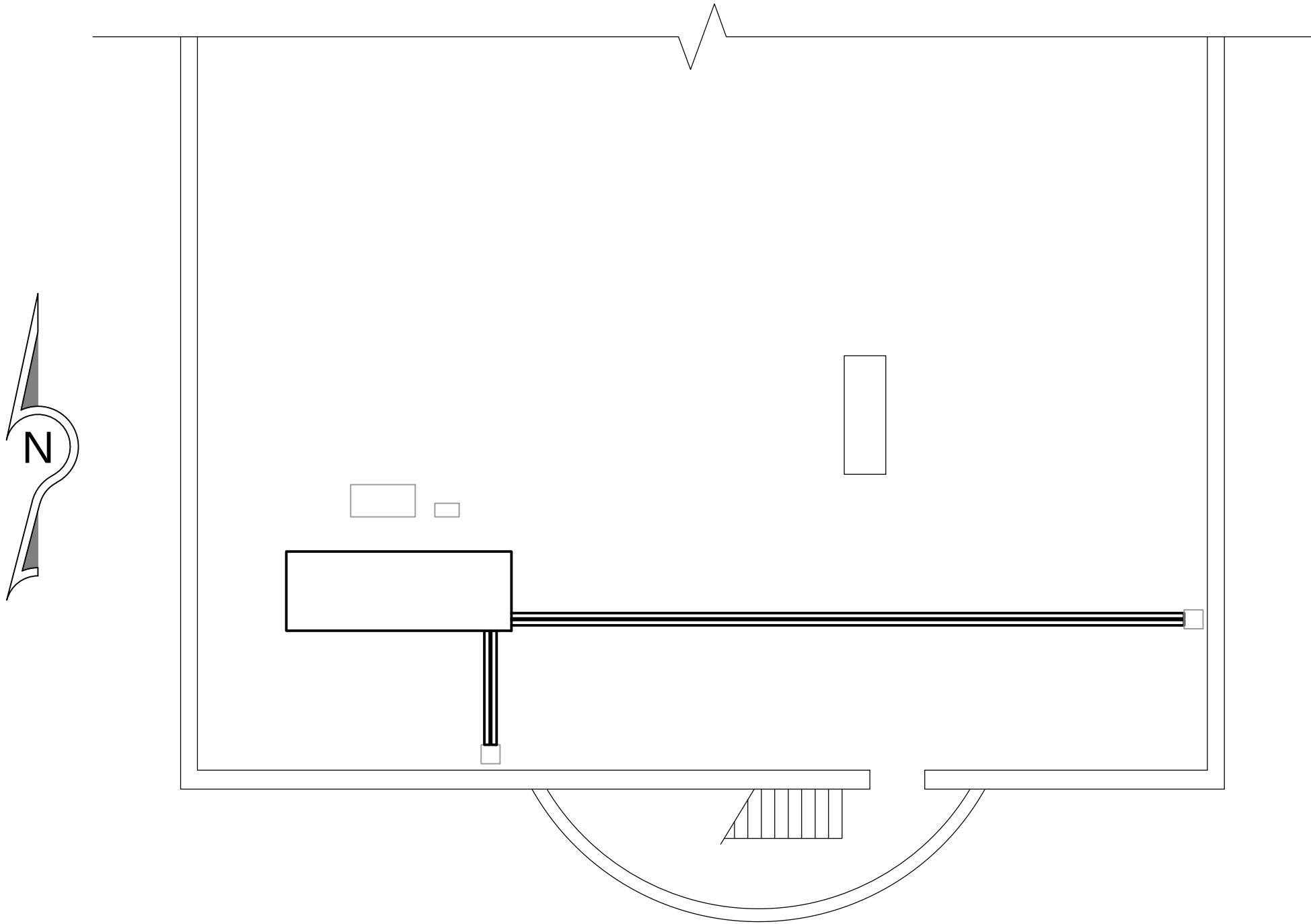
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USER NAME: Jun Gervacio
LAST UPDATE: 2/26/2018 4:10 PM
PLOTTED: 2/28/2018 8:53 AM
PATH: \\SRV01\Projects\MUSC\20170078 - H51-D168-JM_2014-15 Maintenance Needs - IOP Generator\Drawings\ELECTRICAL

STRUCTURAL CODE

2015 – INTERNATIONAL BUILDING CODE (IBC)

ELECTRICAL CODE

2014 – NFPA 70 NATIONAL ELECTRICAL CODE
2015 – NFPA 70E ELECTRICAL SAFETY IN THE WORKPLACE
2015 – SOUTH CAROLINA OR INTERNATIONAL BUILDING CODE
2009 – INTERNATIONAL ENERGY CONSERVATION CODE



LAYOUT PLAN
SCALE: 1/8" = 1'-0"

DRAWING TITLE:

CHARLESTON, SC
MUSC IOP
GENERATOR REPLACEMENT

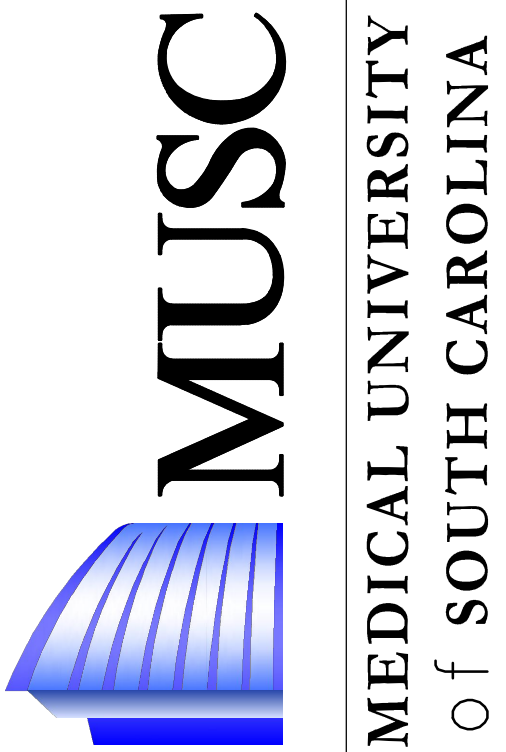
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DRAWN BY: SGF
APPROVED BY: LAM
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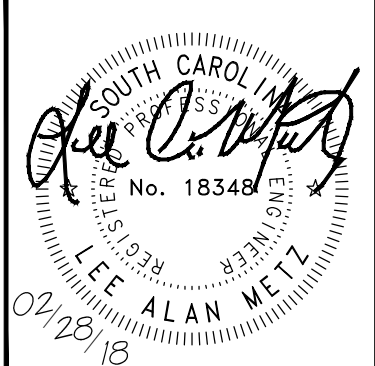
DRAWING NUMBER:

G0-01

REV.	DATE	REV. BY	REVISION INFORMATION
A	02/23/18	SGF	ISSUED FOR BIDS



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DESIGN CRITERIA

GOVERNING CODE: INTERNATIONAL BUILDING CODE (IBC) 2015

ROOF DEAD LOAD: = 20 PSF

ROOF LIVE LOAD: = 20 PSF

WIND LOAD:
BASIC WIND SPEED (3 SEC.) = 157 MPH
WIND EXPOSURE = B
RISK CATEGORY IV

SEISMIC LOAD:
RISK CATEGORY = IV
IMPORTANCE FACTOR I_e = 1.5
SEISMIC DESIGN CATEGORY = D
SITE CLASS = D
SPECTRAL RESPONSE COEFFICIENT SDS = 0.790g, SD1 = 0.403g

EQUIPMENT LOADS:
NEW GENERATOR WITH ENCLOSURE = 24,000 LBS.
NEW STEEL GENERATOR SUPPORT PLATFORM = 2,800 LBS.

GENERAL CONSTRUCTION NOTES

- THE PURPOSE OF THESE GENERAL NOTES IS TO INFORM THE CONTRACTOR OF THE STRUCTURAL DESIGN CRITERIA INCLUDING DESIGN LOAD VALUES AND MATERIAL STRENGTHS, MINIMUM INFORMATION REQUIRED ON SHOP DRAWINGS AND MISCELLANEOUS ITEMS NOT SHOWN OR SPECIFIED ELSEWHERE.
- THESE CONTRACT DRAWINGS SHALL NOT BE SCALED FOR THE PURPOSE OF ESTABLISHING CORRECT DIMENSIONS. THE CONTRACTOR SHALL OBTAIN CORRECT DIMENSIONS FROM THE ENGINEER OR AS REQUESTED ON THE SHOP DRAWINGS.
- BEFORE BEGINNING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS AND VERIFY EXISTING CONDITIONS, COMPARE RESULTS WITH INFORMATION GIVEN ON DRAWINGS AND REPORT ANY INCONSISTENCIES TO THE ENGINEER AT ONCE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, PROTECTING, OR RELOCATING ALL SERVICE AND UTILITY LINES IN THE VICINITY OF THE WORK. ALL EXCAVATIONS NEAR LINES SHALL BE CARRIED OUT WITH EXTREME CAUTION.
- THE CONTRACTOR SHALL SUBMIT ONE PRINT OF SHOP DRAWINGS. DO NOT PERMIT SHOP DRAWINGS MARKED "REJECTED" OR "REVISE AND RESUBMIT" TO BE USED IN THE WORK. SHOP DRAWINGS SHALL BE SUBMITTED FOR THE FOLLOWING:
A. STRUCTURAL STEEL
B. MISCELLANEOUS STEEL
C. STEEL DECKING
- THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A TESTING AGENCY TO PERFORM FIELD QUALITY CONTROL INSPECTIONS AND TESTS RELATED TO THE FOLLOWING:
A. STEEL CONNECTIONS
B. CONCRETE SAMPLING AND TESTING

STRUCTURAL STEEL NOTES

GENERAL:

- ALL DETAILING, FABRICATION, AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS – AISC 360 LATEST EDITION.
- UNLESS OTHERWISE NOTED, ALL ANCHORS SHALL BE THREADED RODS (SEE DRAWINGS FOR DIAMETER AND PROJECTION) SET USING AN EPOXY ADHESIVE ANCHORING SYSTEM SUCH AS HILTI "HIT HY 200" OR RAMSET "EPCON CERAMIC 6" AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. UNLESS OTHERWISE SHOWN, MINIMUM EMBEDMENT IN CONCRETE OR MASONRY TO BE 8 TIMES THE ROD DIAMETER.
- FIELD WELDING AT EXISTING CONSTRUCTION: THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT ACCIDENTAL FIRE DURING FIELD WELDING IN AND AROUND EXISTING CONSTRUCTION. PRECAUTIONS MAY INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:
PROTECTING EXISTING CONSTRUCTION FIRE RESISTANT BLANKETS (WELDER'S BLANKET), POSTING A WORKMAN WITH A FIRE EXTINGUISHER, OR ANY OTHER METHOD SPECIFIED BY THE OWNER. (COORDINATE WITH OWNER)
- ALL BEAMS SHALL BE FABRICATED AND ERECTED WITH THE NATURAL CAMBER UPWARD.
- GROUT FOR BASE PLATES SHALL BE NON-SHRINK, NON-METALLIC, AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5500 psi AT 28 DAYS. PRE-GROUTING OF COLUMN BASE PLATES OR THE USE OF LEVELING PLATES AT COLUMN BASES IS PROHIBITED.

MATERIALS:

- UNLESS OTHERWISE NOTED, ALL STRUCTURAL STEEL SHALL BE ASTM A992 FY=50 KSI. MISCELLANEOUS STEEL, BRACING AND CONNECTION ANGLES, AND PLATES SHALL BE ASTM A36, FY=36 KSI. ANCHOR RODS SHALL BE ASTM F1554 GR. 36.
- STRUCTURAL TUBING STEEL (NOTED "HSS") SHALL BE ASTM A500, GRADE B, FY=46 KSI.
- STEEL PIPE (NOTED "HSS") SHALL BE ASTM A53, TYPES E OR S, GRADE B, FY=35 KSI (MIN).
- STEEL BAR GRATING SHALL BE IKG INDUSTRIES TYPE WB WELDFORGED WELDED GALVANIZED STEEL GRATING OR APPROVED EQUAL, WITH 1 1/2"x1/8" BEARING BARS SPACED AT 1 3/16" ON CENTER. ATTACH TO SUPPORT STEEL WITH 3/16"x1" FILLET WELDS AT SIDES OF SHEETS AND AT 18" ON CENTER MAXIMUM INTERMITTENTLY. GRATING SPLICES, IF REQUIRED, SHALL OCCUR AT CENTERLINES OF SUPPORT BEAMS. TOUCH-UP PAINT WELDS AND SCRATCHES WITH COLD GALVANIZING PAINT (95% MINIMUM ZINC CONTENT). BAND ALL EXPOSED EDGES OF GRATING.

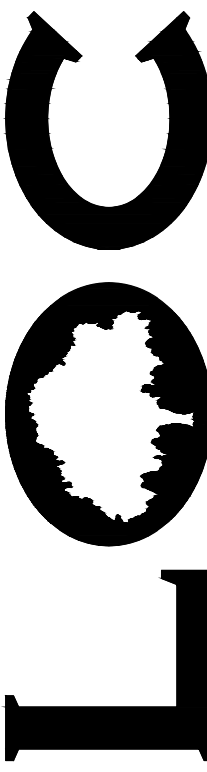
CONNECTIONS:

- THE FABRICATOR IS RESPONSIBLE FOR THE DESIGN AND DETAILING OF ALL CONNECTIONS NOT FULLY DETAILED ON THE CONTRACT DOCUMENTS. STRUCTURAL STEEL CONNECTIONS SHALL BE AS FOLLOWS, UNLESS INDICATED OTHERWISE. A MINIMUM OF TWO BOLTS SHALL BE USED FOR ANY BOLTED CONNECTION.
- ALL CONNECTIONS NOT FULLY DETAILED ON THE DRAWINGS SHALL BE DESIGNED BY A STRUCTURAL ENGINEER, HIRED BY THE FABRICATOR, REGISTERED IN THE STATE OF SOUTH CAROLINA, AND SHOP DRAWINGS AND CALCULATIONS OF THESE CONNECTIONS SHALL BE SUBMITTED WHICH BEAR THEIR STAMP AND SIGNATURE. REGARDLESS TO PROVISIONS TO THE CONTRARY IN AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", ALL CONNECTIONS DESIGNED BY THE FABRICATOR'S ENGINEER SHALL BE THE FABRICATOR'S RESPONSIBILITY AND REVIEW OF SHOP DRAWINGS BY LIVE OAK CONSULTANTS, LLC. REPRESENTATIVES WILL NOT RELIEVE THE FABRICATOR OF THIS RESPONSIBILITY. MOMENT CONNECTIONS AND CONNECTIONS WITH AXIAL FORCES SHALL BE DESIGNED AND DETAILED TO SATISFY THE REQUIREMENTS OF "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS (ANSI/AISC 341-02)", 2002 EDITION, BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION.
- ALL BOLT HOLES SHALL BE 1/16" DIAMETER LARGER THAN THE NOMINAL BOLT DIAMETER, UNLESS INDICATED OTHERWISE.
- ALL CONNECTIONS SHALL BE WELDED OR HIGH-STRENGTH BOLTED. WELDS SHALL BE E70XX AND BOLTS SHALL BE 3/4 INCH DIAMETER A325-N (THREADS IN SHEAR PLANE), UNLESS NOTED OTHERWISE. ALL STRUCTURAL WELDS TO BE MADE BY CERTIFIED WELDERS. CONFORM TO AWS D1.1 "STRUCTURAL WELDING CODE – STEEL", LATEST EDITION.
- UNLESS OTHERWISE SHOWN, ALL BEAM CONNECTIONS SHALL BE STANDARD FRAMED CONNECTIONS AS SHOWN IN PART 9 OF THE AISC "MANUAL OF STEEL CONSTRUCTION" – 13TH EDITION. UNLESS GREATER REACTIONS ARE INDICATED ON THE PLANS, SHEAR CONNECTIONS SHALL BE AS FOLLOWS:

NOM. MEMBER DEPTH	NO. OF ROWS OF BOLTS
8" THRU 10"	2
- FIELD BOLTED CONNECTIONS SHALL BE TESTED AND INSPECTED ACCORDING TO RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS". IN ADDITION TO VISUAL INSPECTION, WELDED CONNECTIONS WILL BE INSPECTED AND TESTED ACCORDING TO AWS D1.1 PROCEDURES.
- BRACING CONNECTIONS SHALL BE DESIGNED AND DETAILED SO THAT ALL FORCE COMPONENTS ARE TRANSFERRED DIRECTLY TO THE CENTERLINES OF INTERSECTING MEMBERS, EXCEPT WHERE NOTED ON THE DESIGN DRAWINGS. WHERE THIS IS NOT POSSIBLE, BRACING CONNECTIONS SHALL BE DESIGNED FOR ALL RESULTING ECCENTRICITIES.
- SPLICING OF STRUCTURAL MEMBERS, WHERE NOT DETAILED ON THE DRAWINGS, IS PROHIBITED WITHOUT THE ENGINEER'S PRIOR APPROVAL AS TO LOCATION, TYPE OF SPLICE, AND STYLE OF CONNECTION.

COATINGS

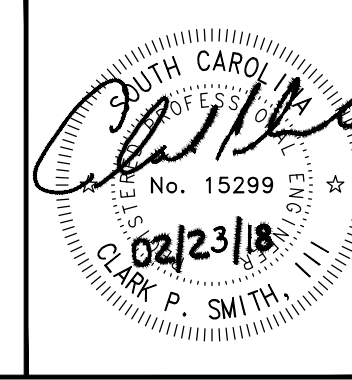
ALL EXTERIOR STEEL SURFACES SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123 AFTER FABRICATION.



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REVISION INFORMATION			
REV.	DATE	REV. BY	REVISION
A	10/20/17	MEJ	SCHEMATIC DESIGN
B	02/23/18	GWS	ISSUED FOR BIDS

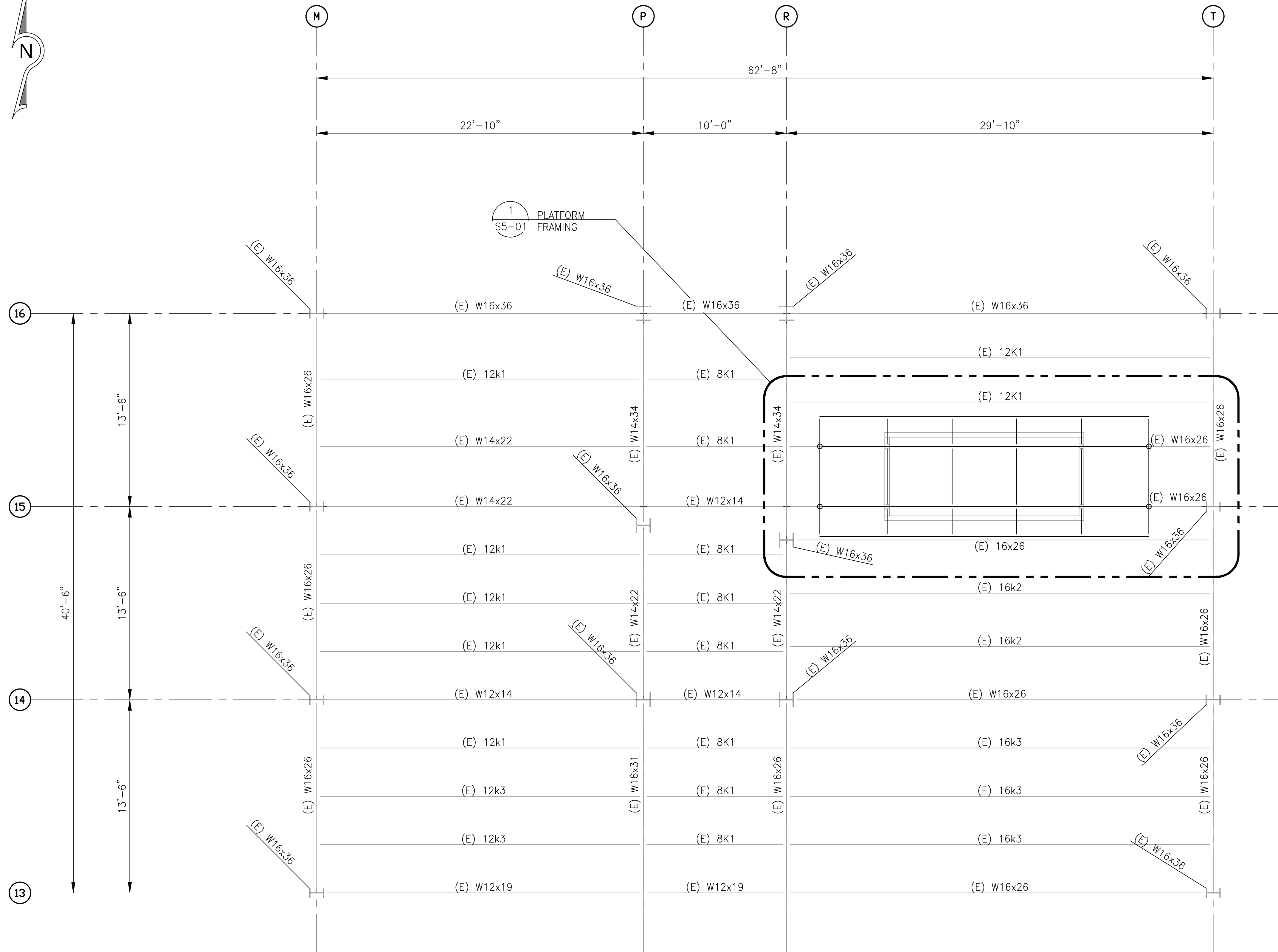
DRAWING TITLE:

CHARLESTON, SC
MUSC IOP
GENERATOR REPLACEMENT
STRUCTURAL
DESIGN CRITERIA
& GENERAL NOTES

PROJECT MANAGER: CPS
DESIGNED BY: MEJ
DRAWN BY: MEJ
APPROVED BY: GS
SCALE: AS NOTED
PROJECT NUMBER: 20170078
CAD FILE: S0-01.DWG

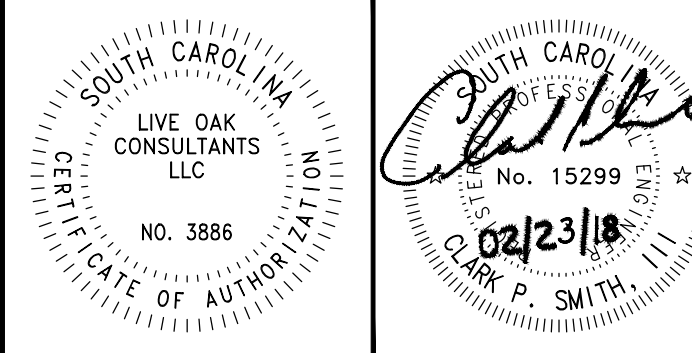
DRAWING NUMBER:

S0-01



SCALE: $1/4" = 1'-0"$

1. FOR DESIGN CRITERIA AND GENERAL NOTES REFER TO DRAWING S0-01
2. REFER TO S5-02 FOR GENERATOR PLATFORM FABRICATOR ASSEMBLY DRAWING



REV.	DATE	REV. BY	REVISION INFORMATION
A	10/20/17	MEJ	SCHEMATIC DESIGN
B	02/23/18	GWS	ISSUED FOR BIDS

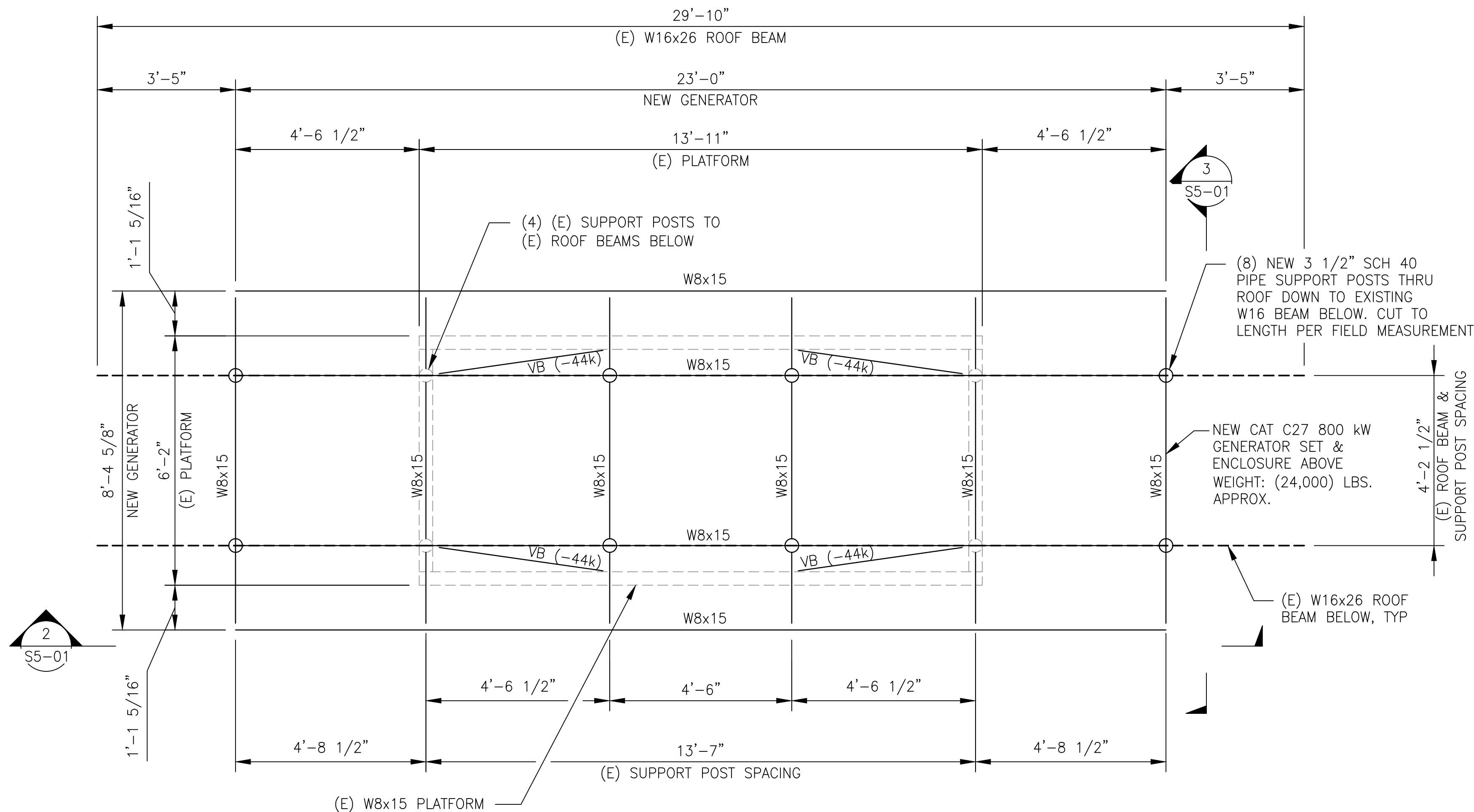
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CHARLESTON, SC
MUSC IOP
GENERATOR REPLACEMENT
STRUCTURAL
NEW MOUNTING
PLATFORM PLAN

PROJECT MANAGER:	CPS
DESIGNED BY:	MEJ
DRAWN BY:	MEJ
APPROVED BY:	GS
SCALE:	AS NOTED
PROJECT NUMBER:	20170078
CAD FILE:	S1-01.DWG

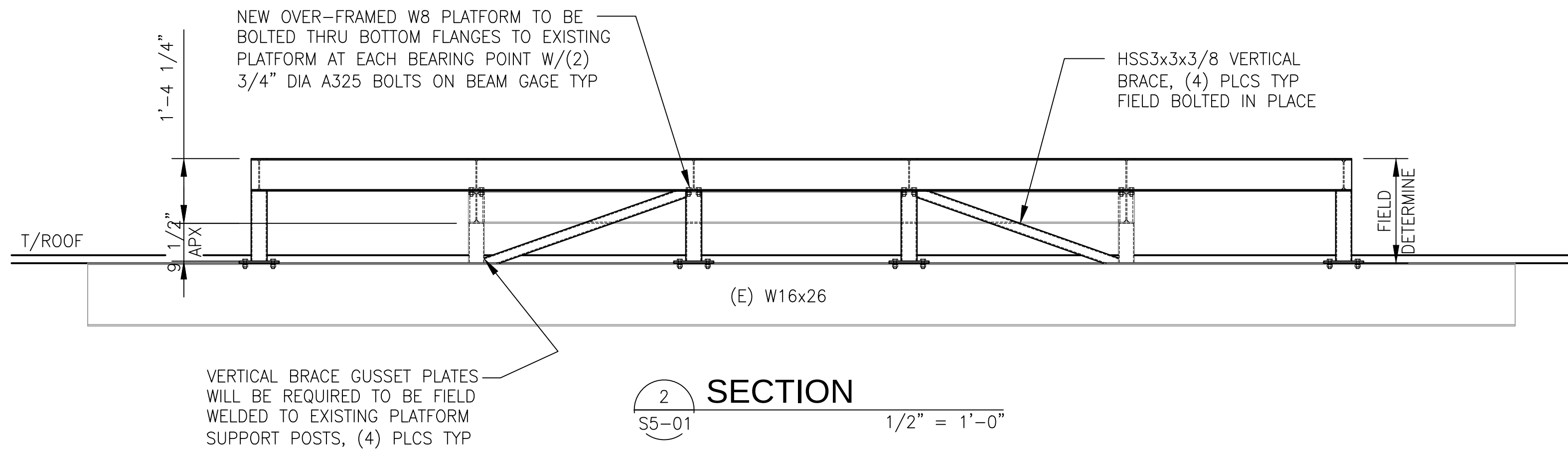
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S1-01

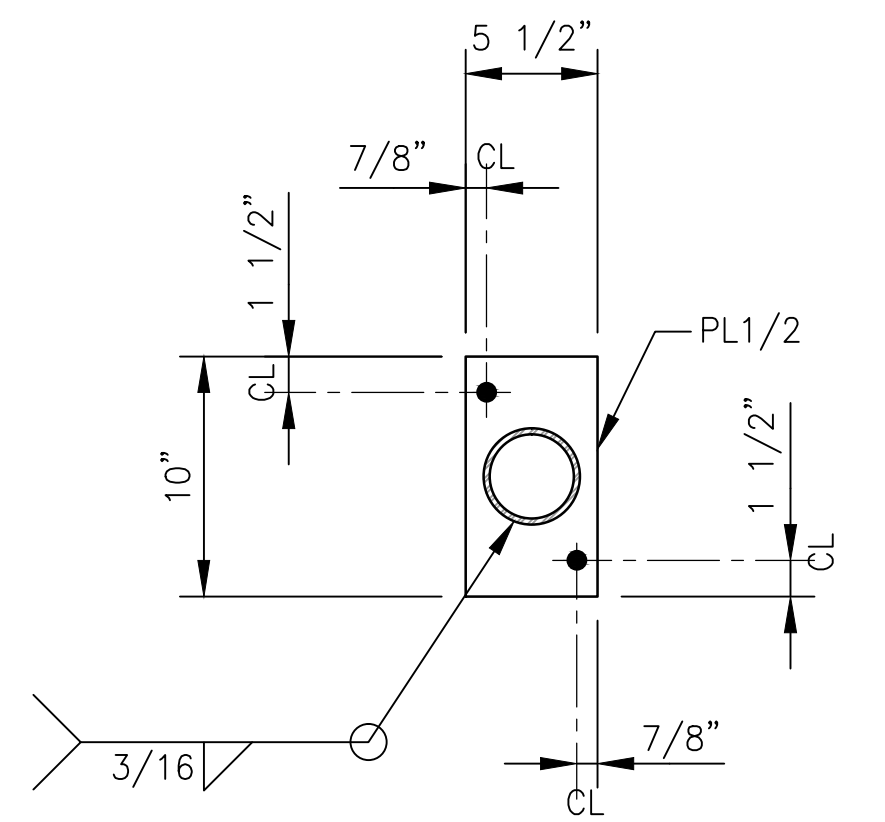


GENERATOR MOUNTING FRAME MODIFICATION

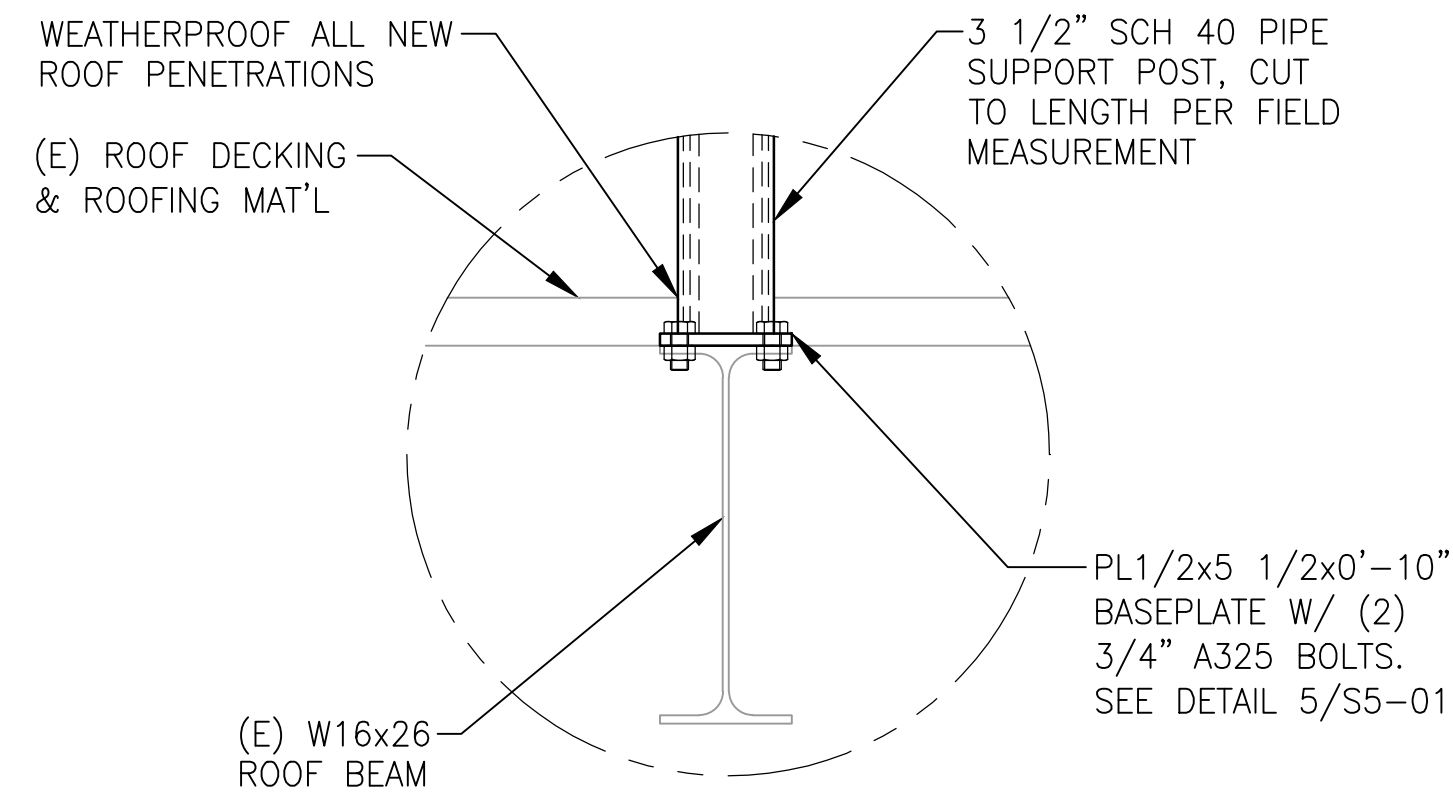
1 PLAN
S5-01 1/2" = 1'-0"



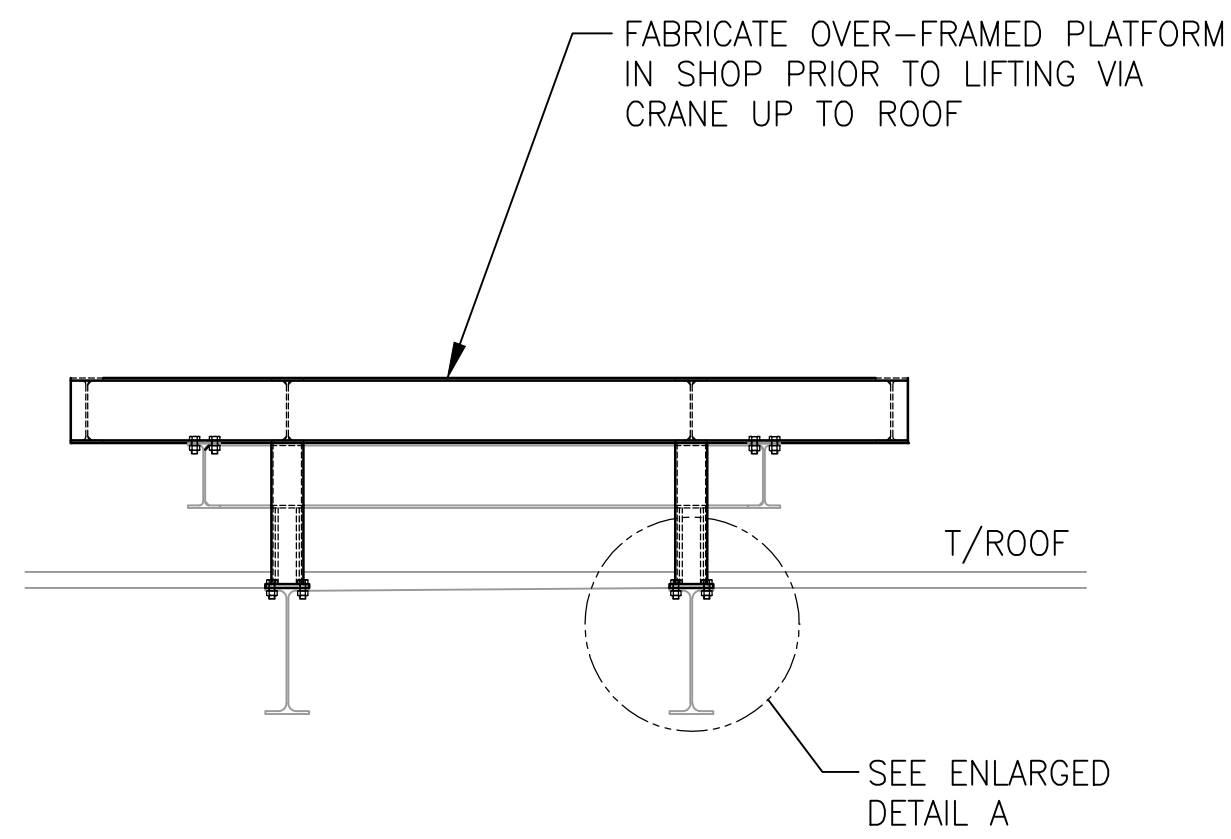
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5 DETAIL
S5-01 1 1/2" = 1'-0"



4 DETAIL
S5-01 1 1/2" = 1'-0"



3 SECTION
S5-01 1/2" = 1'-0"

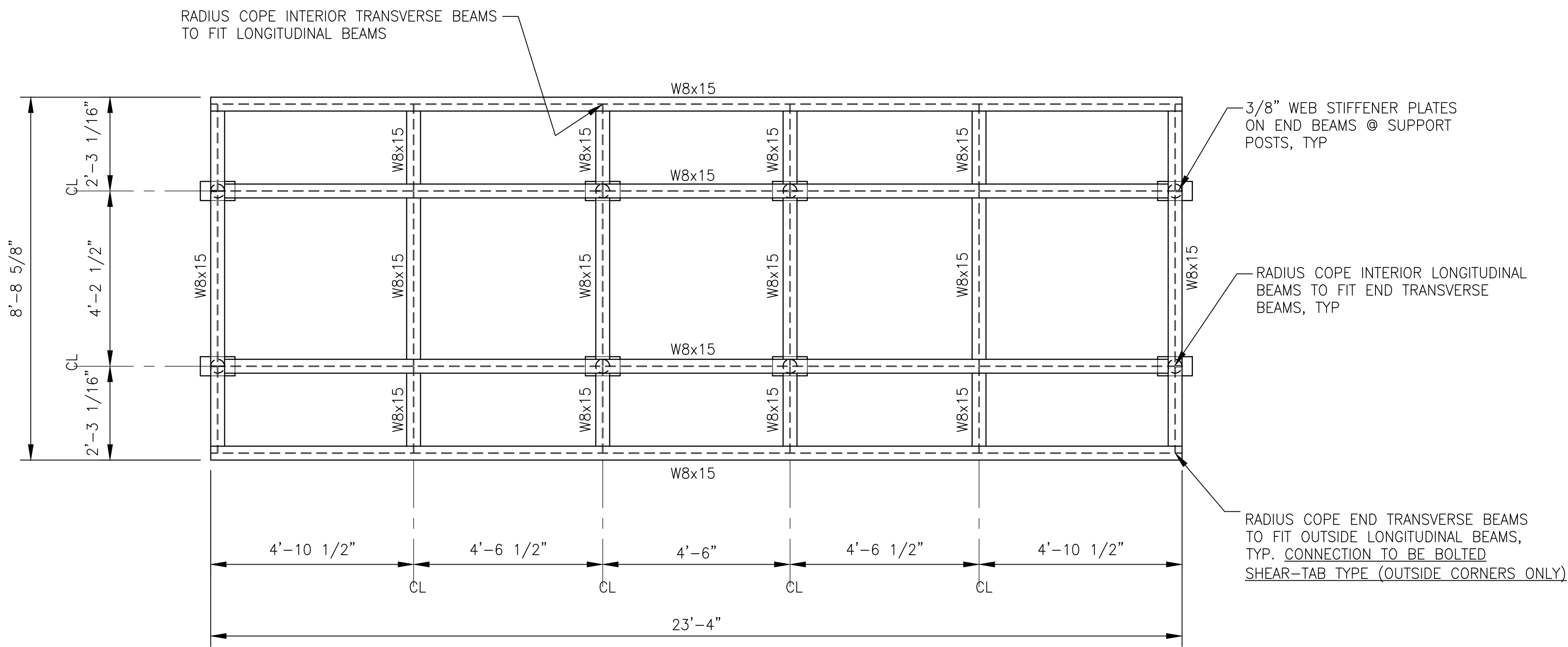
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USER NAME
Eric James

LAST UPDATE
2/28/2018 8:39 AM

PLOTTED
2/28/2018 8:41 AM

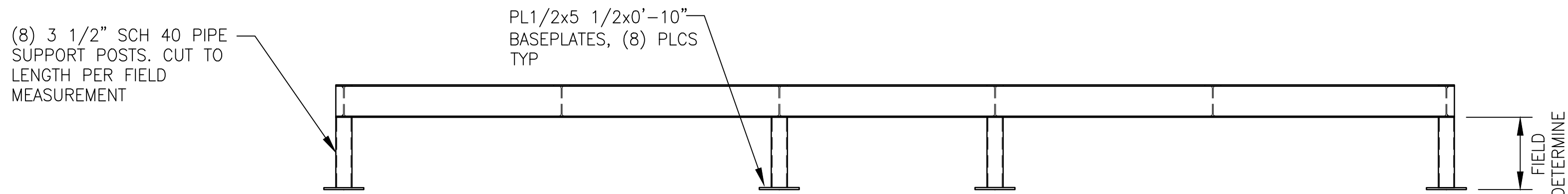
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P:\MUSC\20170078 - H51-D168-JM_2014-15 Maintenance Needs - IOP Generator Drawings\STRUCTURAL



NOTE: ALL RADIUS COPED BEAM FRAMING CONNECTIONS ARE TO BE FULLY-RESTRAINED RIGID WELDED CONNECTIONS, UNO

GENERATOR PLATFORM FABRICATION ASSEMBLY

1 PLAN
S5-01 1/2" = 1'-0"

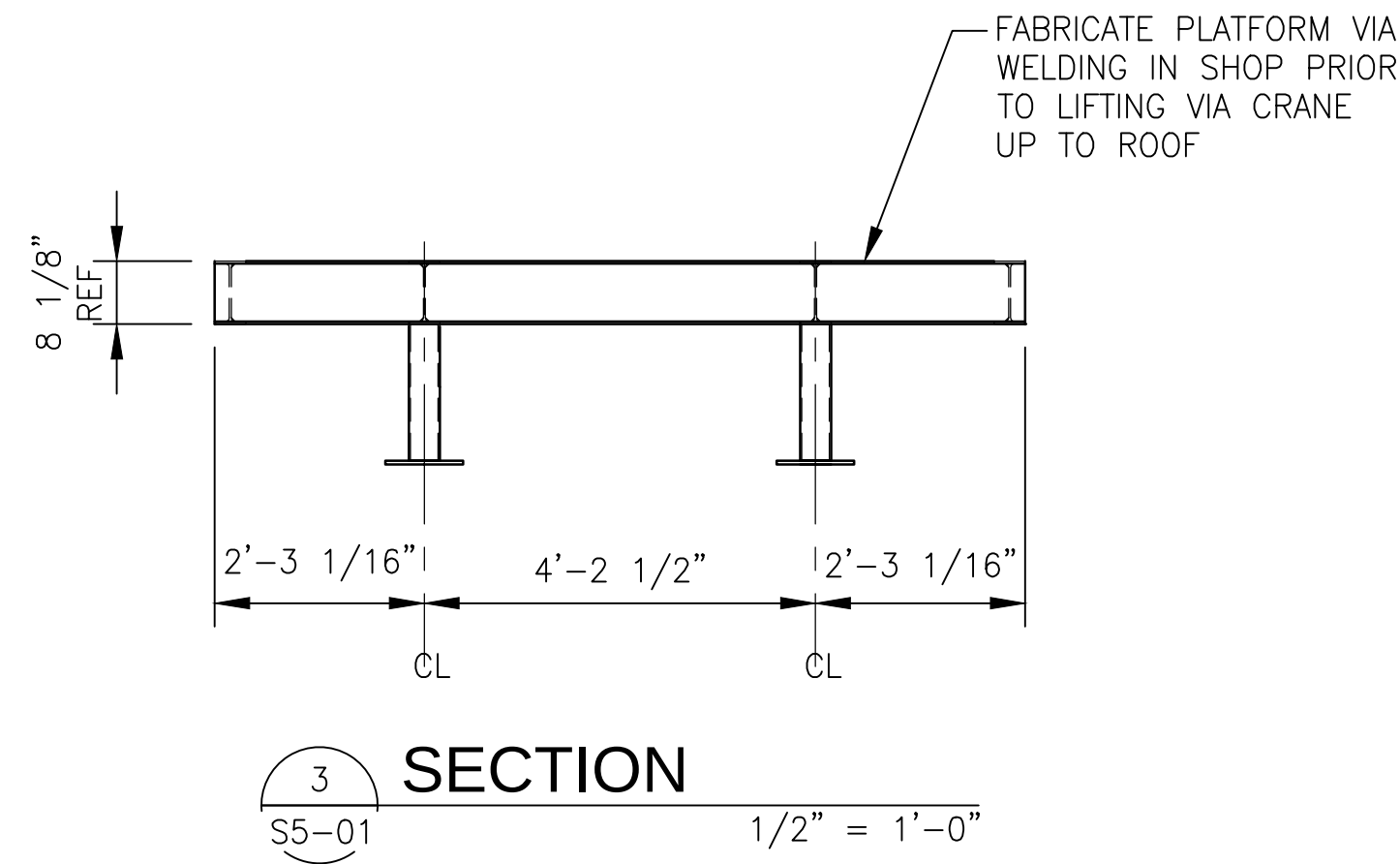


2 SECTION
S5-01 1/2" = 1'-0"

NOTE: THIS INFORMATION IS PROVIDED FOR FABRICATOR REFERENCE IN THE CREATION OF SHOP DRAWINGS

GENERAL NOTES:

1. ALL COMPONENTS TO BE HOT-DIP GALVANIZED AFTER FABRICATION



3 SECTION
S5-01 1/2" = 1'-0"

LOO

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NO. 3886
DATE OF AUTHORIZATION

SOUTH CAROLINA
CLARK P. SMITH
No. 15299
02/23/18

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CLIENT:

REV.	DATE	REV. BY	REVISION INFORMATION
A	10/20/17	MEJ	SCHEMATIC DESIGN
B	02/23/18	GWS	ISSUED FOR BIDS

DRAWING TITLE:

CHARLESTON, SC
MUSC IOP
GENERATOR REPLACEMENT
STRUCTURAL
GENERATOR PLATFORM
FABRICATION ASSEMBLY

PROJECT MANAGER: CPS
DESIGNED BY: MEJ
DRAWN BY: MEJ
APPROVED BY: GS
SCALE: AS NOTED
PROJECT NUMBER: 20170078
CAD FILE: S5-02.DWG

DRAWING NUMBER:

S5-02



DRAWING NUMBER:
E-1

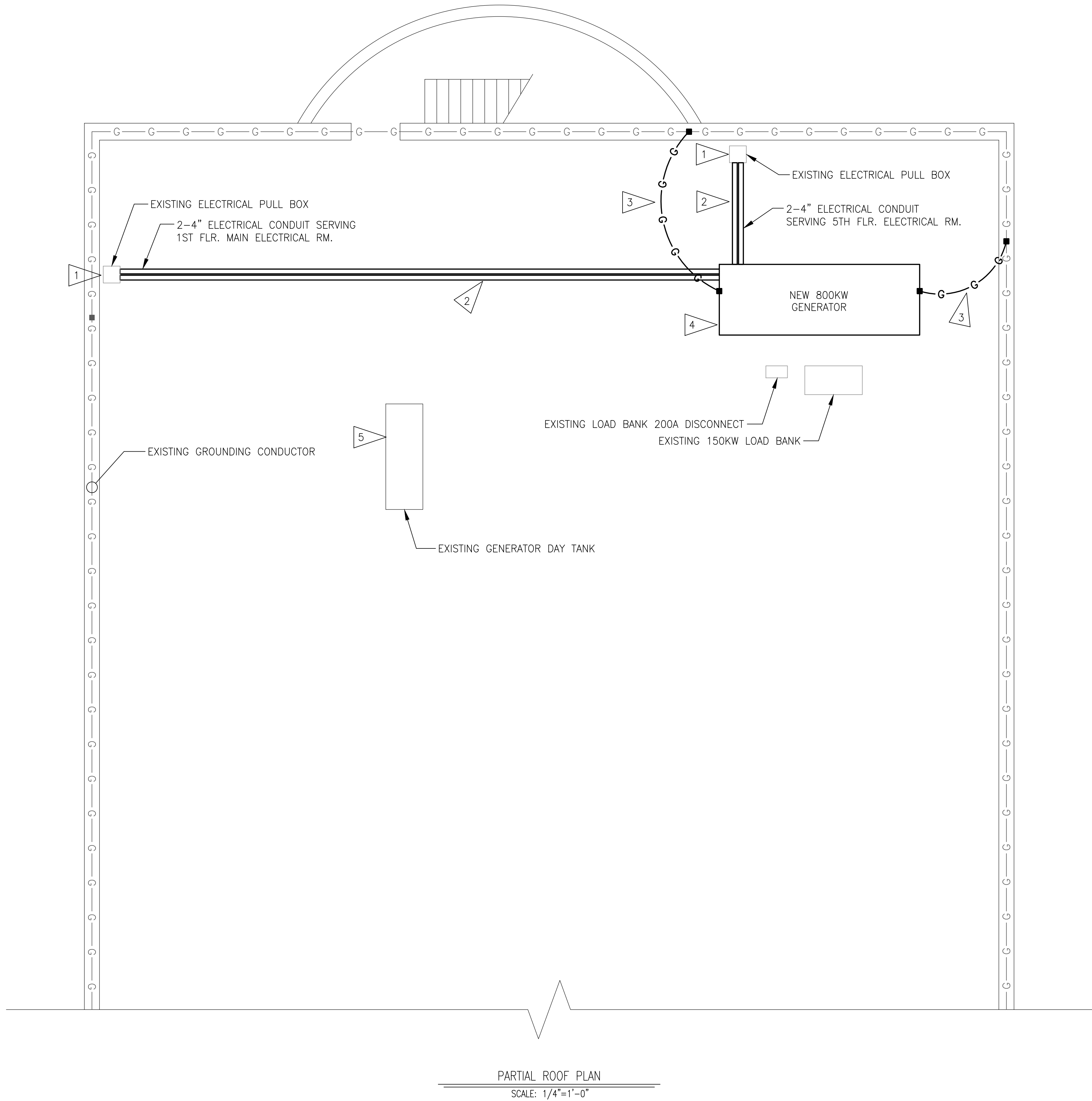
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USER NAME
Jun Gervacio

LAST UPDATE
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PLOTTED
2/28/2018 8:52 AM

PATH
\\SRV01\Projects\MUSC\20170078 - H51-D168-JM_2014-15 Maintenance Needs - IOP Generator\Drawings\ELECTRICAL



GENERAL NOTES:

1. REFER TO STRUCTURAL DRAWING S1-01, S5-01, S5-02 FOR GENERATOR PLATFORM DETAIL.
2. REFER TO DWG. E-1 FOR SINGLE LINE DIAGRAM.

KEYED NOTES:

1 -

CONSTRUCTION NOTES:

- 1 SPLICE 2-4#500KCMIL,#500KCMIL(G) FROM GENERATOR 800A BREAKERS TO EXISTING 2-4#500KCMIL,#500KCMIL(G). REPLACE PULL BOX IF NECESSARY.
- 2 INSTALL 2-4"C TO NEW 800KW GENERATOR.
- 3 INSTALL #4/0 GROUND CONDUCTOR AND CONNECT FROM NEW 800KW GENERATOR TO EXISTING BUILDING GROUND SYSTEM ON ROOF.
- 4 REMOVE EXISTING GENERATOR AND INSTALL NEW 800KW GENERATOR ON NEW STEEL SUPPORT. RECONNECT EXISTING LOAD BANK DISCONNECT TO NEW GENERATOR.
- 5 RECONNECT DIESEL FUEL LINES FROM EXISTING ROOF TOP DAY TANK TO NEW GENERATOR.

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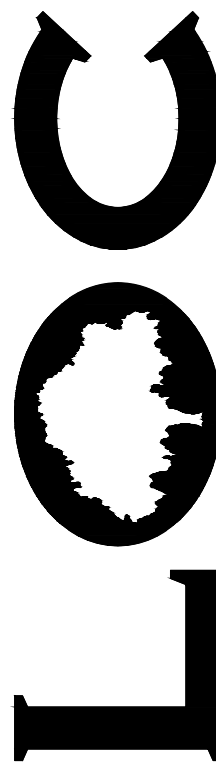
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02/28/18

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REV.	DATE	REV. BY	REVISION INFORMATION
A	10/20/17	JMG	SCHEMATIC DESIGN
B	02/23/18	JMG	ISSUED FOR BIDS

DRAWING TITLE:

CHARLESTON, SC
MUSC IOP
GENERATOR REPLACEMENT
ELECTRICAL
PARTIAL
ROOF PLAN

PROJECT MANAGER: RNB
DESIGNED BY: JMG
DRAWN BY: JMG
APPROVED BY: LAM
SCALE: 1/4"=1'-0"
PROJECT NUMBER: 20170078
CAD FILE: E-2

DRAWING NUMBER:

E-2

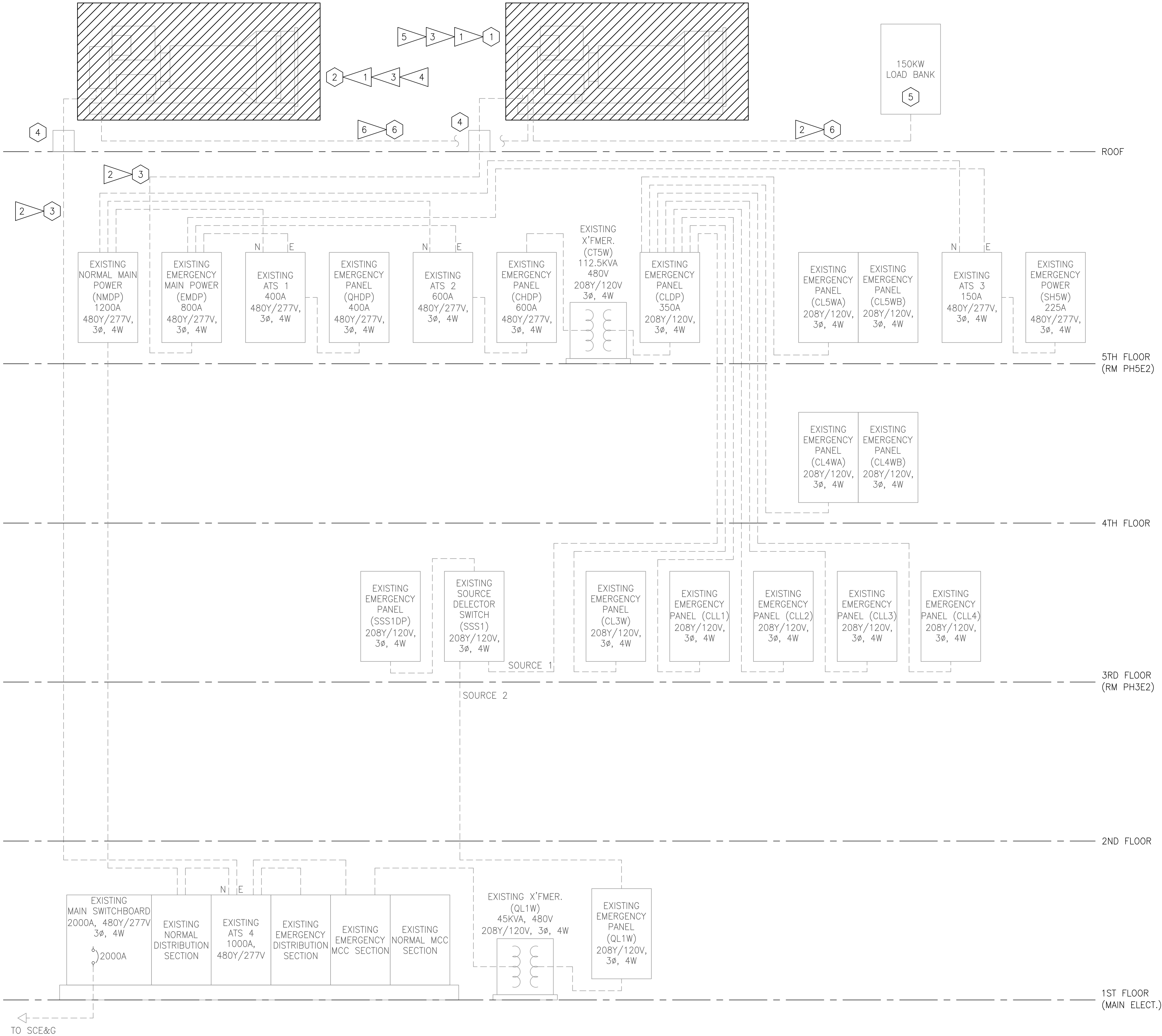
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PLOTTED 2/28/2018 8:53 AM

LAST UPDATE 2/23/2018 9:46 AM

USER NAME Jun Cervacio

FILE NAME ed-1.dwg



GENERAL NOTES:

1.

KEYED NOTES:

- EXISTING 500KW GENERATOR.
- EXISTING 400KW GENERATOR.
- EXISTING 2-4#500KCMIL,#500KCMIL (G).
- EXISTING PULL BOX
- EXISTING LOAD BANK, TO REMAIN.
- EXISTING GENERATOR LOAD BANK FEEDER.

CONSTRUCTION NOTES:

- DEMOLISH ASSOCIATED FUEL PIPING AND CONDUITS AND CONDUCTORS.
- EXISTING FEEDER CONDUCTORS TO BE RE-USED, PROTECT CONDUCTORS DURING CONSTRUCTION PHASE.
- EXISTING GENERATOR STEEL PLATFORM TO REMAIN IN PLACE.
- TURN OFF CIRCUIT BREAKERS AND UPDATE PANEL SCHEDULE, MARK VACATED CIRCUIT BREAKERS AS "SPARE".
- EXISTING BATTERY CHARGER, JACKET WATER HEATER CIRCUITS TO BE RE-USED.
- FEEDER CONDUCTORS TO BE DEMOLISHED.

CLIENT:

REV.	DATE	REV. BY	REVISION INFORMATION
A	10/20/17	JMG	SCHEMATIC DESIGN
B	02/23/18	JMG	ISSUED FOR BIDS

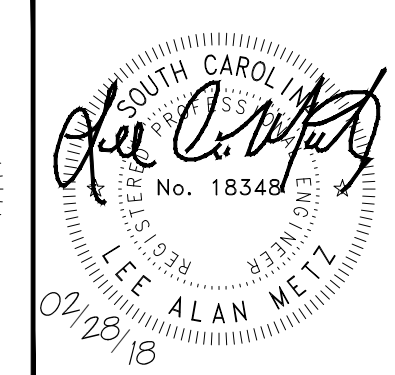
DRAWING TITLE:

CHARLESTON, SC
MUSC IOP
GENERATOR REPLACEMENT
ELECTRICAL
DEMOLITION
SINGLE LINE DIAGRAM

PROJECT MANAGER: RNB
DESIGNED BY: JMG
DRAWN BY: JMG
APPROVED BY: LAM
SCALE: N.T.S.
PROJECT NUMBER: 20170078
CAD FILE: ED-1

DRAWING NUMBER:

ED-1



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